

REMARKS

Claims

No amendments are presented in the above listing of the claims. However, the above listing does indicate that the status of claims 29-32 is “Withdrawn.”

Rejection under 35 USC § 103(a) in view of Seo et al. and Bagala

Claims 1-3, 6-17, 19, 33-37, 42, 43, and 45 are rejected under 35 USC 103(a) as being obvious in view of Seo et al. (US 6,030,627) in combination with Bagala (US 7,045,007). This rejection is respectfully traversed.

In the rejection, it is argued that features of the antimicrobial pigment recited in applicants’ claim 1 are presented in product-by-process language. It is further argued in the rejection that, while product-by-process language does define the claimed invention, patentability of the product is based on the product itself. Based on these arguments, it is asserted in the rejection that the claimed composition is similar or identical to the prior art product and thus the process features of the claims do not patentably distinguish the claimed composition from the prior art.

However, as noted previously, the claimed composition is not the same as the prior art; it is in fact structurally different. These structural differences result from the process used to make the composition as recited in the claims. Thus, contrary to the assertion in the rejection, the process features recited in the claims define a product which is different from the cited prior art. Thus, the process features do distinguish the claimed subject matter from the cited prior art.

Turning to the disclosures of the cited prior art, as noted previously, Seo et al. (US ‘627) disclose an antimicrobial pigment obtained by preparing an amorphous glassy coating layer of metal oxides on the surface of a cosmetic pigment and then intercalating antimicrobial silver, copper, or zinc in the lattice structure of the amorphous glassy coating layer. See, e.g., column 3, lines 16-26. See also the discussion of EP 0 665 004 at page 1, line 25 – page 2, line 2 of applicants’ specification.

To intercalate the silver, copper, or zinc into the lattice structure of metal oxide amorphous glassy coating layer, the antimicrobial metals are added during the dry milling or heating steps used to form the metal oxide coating layer. Alternatively, the antimicrobial

metals are added in the form of aqueous salts during the wet milling step. See column 7, lines 10-23. Intercalation is achieved by roasting and/or sintering at high temperatures, for example 300- 1200°C. See column 7, line 26, column 7, line 34, column 7, lines 55-56, and column 8, lines 4-6. See also the Examples.

Seo et al. do not disclose or suggest obtaining an antimicrobial inorganic pigment by agitating a suspension comprising one or more inorganic pigments and silver oxide. Moreover, in light of the required roasting/sintering, the Seo et al. process does not disclose or suggest preparing antimicrobial pigment particles with silver oxide at a temperature of 10 - 60°C.

The process of Seo et al. is specifically directed towards obtaining a product wherein silver, copper, or zinc is **intercalated** into the lattice structure of metal oxide amorphous glassy coating layer. To obtain such a structure, i.e., with intercalation, the product is roasted and/or sintered at high temperatures.

Unlike the intercalation process of Seo et al., applicants' process involves much gentler conditions, i.e., agitation of a suspension comprising inorganic pigment(s) and silver oxide at a temperature between 10°C and 60°C. This procedure does not provide conditions for the intercalation of silver into the lattice structure of a metal oxide amorphous glassy layer. Thus, the product obtained using applicants' process is structurally different than the intercalated product obtained by Seo et al.

See also the disclosure in applicants' specification bridging pages 13-14. This portion of the disclosure states that it is believed that formation of the pigments involves an ion exchange reaction whereby protons or ions on the surface area of the inorganic pigment are replaced by antimicrobial ions, for example silver ions, with the result that silver ions are bonded to moieties of the inorganic pigment. The resultant structures can be approximately described as silver silicates or silver titanates. This disclosure also states that "further analytical experiments revealed the absence of silver metal or silver oxide simply deposited on the surface encouraging silver silicate or silver titanate to be the most relevant structures."

The rejection also refers to the disclosure of Bagala (US '007). However, it is unclear how the Bagala disclosure is being used in the rejection. For example, the rejection never states that it would be obvious to modify some aspect of the antimicrobial pigment of Seo et al. based on some portion of the disclosure of Bagala.

Bagala discloses an effect pigment made from a mixture of coated laminar platelets, wherein the platelets are a mixture of different substrate materials, such as glass and mica. See, e.g., column 3, lines 23-35. Bagala also disclose that one of the substrates can be either platy aluminum oxide or platy glass, and the other laminar substrate can be platy aluminum oxide, platy glass, or another platy material such as aluminum, mica, bismuth oxychloride, platy iron oxide, platy graphite, or platy silica.

As stated in claim 1, Bagala disclose an “effect pigment comprising metal oxide-coated laminar platelets in which the platelets are a mixture of about 5 to 90% platy glass and 90 to 5% platy mica and in which the effect pigment exhibits visual homogeneity.” The metal oxides used in the coating can be titanium, iron, tin, chromium or zirconium oxides, and Bagala also disclose the use of a titanium oxide coating “followed by iron oxide.” See column 3, lines 38-50.

Bagala does **not** disclose or suggest obtaining an antimicrobial inorganic pigment by agitating a suspension comprising one or more inorganic pigments and silver oxide at a temperature of 10 - 60°C.

At column 3, line 37 - column 4, line 37, Bagala describe the general preparation of the effect pigment. The procedure involves dispersing the particulate (flakes) in, for example, water and then combining that resultant water/particulate slurry with a titanium oxide precursor (such as titanium, titanyl chloride or titanium tetrachloride) or iron oxide precursor (e.g., ferric chloride) to form a titanium oxide or iron oxide coating on the flakes. Precipitation is controlled by controlling the pH of the resulting slurry using a suitable base such as sodium hydroxide or if necessary an aqueous acid such as hydrochloric acid. The coated platelets, after being washed and dried if desired, are calcined to the final effect pigment.

In the rejection, reference is made to the disclosure of Bagala at column 4, lines 38-52. This portion of the disclosure relates to variable effect pigments. As described by Bagala, these pigments comprise a substrate that is coated with a reflecting layer, which is then overcoated with a low index of refraction material, which is then optionally further overcoated with a selectively transparent third layer. The reflecting layer can be made of, for example, silver, gold, platinum, palladium, rhodium, ruthenium, osmium, iridium or their alloys. The selectively transparent third layer can be made from silicon, iron oxide,

chromium oxide, a mixed metal oxide, titanium dioxide, titanium nitride, aluminum, or the materials used to make the reflecting layer.

Thus, this portion of the Bagala disclosure describes the possibility of a variable effect pigment having a reflecting layer made from silver. However, this disclosure relating to variable effect pigments does not suggest pigment particles obtained by agitating a suspension comprising one or more inorganic pigments and silver at a temperature between 10°C and 60°C.

In addition, neither Seo et al. nor Bagala disclose pigment particles having Hunter model L, a and b values of: $-6 \leq \Delta L \leq 6$, $-5 \leq \Delta a \leq 5$, and $-5 \leq \Delta b \leq 5$. Compare, e.g., applicants' claim 1. In the rejection, it is asserted that Seo et al. teach a pigment having "the same make up of metal oxides" as the claimed pigment, and thus Seo et al.'s pigment would exhibit the same properties as the claimed pigment. However, as noted above, the structure of the Seo et al. pigment is different than that of applicants' pigment, and therefore there is no basis to assume that the Seo et al. pigment would exhibit the same properties as the claimed pigment.

In view of the above remarks, it is respectfully submitted that the disclosure Seo et al. (US 6,030,627), alone or in combination with the disclosure of Bagala (US 7,045,007), fails to render obvious applicants' claimed invention. Withdrawal of the rejection is respectfully requested.

Rejection under 35 USC § 103(a) in view of Seo et al., Bagala, Vollhardt, Scott et al., and Eini et al.

Claims 20-28 are rejected as being obvious under 35 USC 103(a) in view of the combination of Seo et al. (US 6,030,627) and Bagala (US 7,045,007), and further in view of Vollhardt (US 6,274,124), Scott et al. (US 6,482,397), and Eini et al. (US 2003/0157138). This rejection is also respectfully traversed.

The disclosures of Seo et al. and Bagala are discussed above. The disclosures of Vollhardt, Scott et al., and Eini et al. provide no suggestion to modify the pigment containing intercalated antimicrobial metals described by Seo et al. in such a manner as to arrive at a formulation in accordance with applicants' claimed invention.

Vollhardt disclose a cosmetic or dermatological formulation for topical application to the skin that comprises at least one cosmetic and/or dermatological active agent and an

acceptable carrier, wherein the addition of 1,2-pentanediol improves the water resistance of the formulation. See column 3, lines 26-32.

Vollhardt further disclose that the formulation can also contain organic UV filter substances, antioxidants, and/or inorganic pigments. Vollhardt disclose oxides of titanium, zinc, iron, zirconium, silicon, manganese, aluminum, cerium and mixtures thereof as inorganic pigments. See column 2, lines 16-18, and column 4, lines 36-41.

In terms of as cosmetic and/or dermatologically active agents, Vollhardt disclose antioxidants, anti-inflammatory compounds, anti-microbial compounds (“like Farnesol, Triclosan, and mixtures thereof”), antiperspirants, fragrance compounds, and skin whitening compounds. See column 4, line 50 – column 6, line 54.

Scott et al. (US ‘397) disclose a cosmetic compositions containing: (a) an artificial tanning effective amount of a self tanning agent (such as DHA, i.e., dihydroxyacetone); (b) a composition coloring agent; and, (c) a cosmetically acceptable carrier adapted for topical application to human skin. The composition may also contain antimicrobial agents and preservatives such as: benzalkonium chloride, benzoic acid, benzyl alcohol, butylparaben, chlorbutanol, ethyl paraben, methyl paraben, parahydroxybenzoic acid alkyl esters, phenylethyl alcohol, phenyl mercuric acetate, potassium sorbate, propionate salts, propylparaben, sodium benzoate, sodium dehydroacetate and sorbic acid. See column 4, lines 63 – column 5, lines 5.

Eini et al. disclose a pharmaceutical or cosmetic carrier comprising 1-25 wt.% of a solidifying agent and 75-99 wt.% of a hydrophobic solvent. See paragraph [0024]. Eini et al. further disclose that the composition can contain an antibiotic agent, for example, tetracyclines, synthetic and semi-synthetic penicillins, beta-lactames, quinolones, fluoroquinolones, and macrolide antibiotics. See paragraph [0075].

In general, none of the cited references disclose or suggest obtaining an antimicrobial inorganic pigment by agitating a suspension comprising one or more inorganic pigments and silver oxide at a temperature of 10 - 60°C, wherein the amount of silver oxide of 0.01 to 0.5% by weight, based on the total weight of the pigment. Nor do any of the references disclose pigment particles having Hunter model L, a and b values of: $-6 \leq \Delta L \leq 6$, $-5 \leq \Delta a \leq 5$, and $-5 \leq \Delta b \leq 5$. Compare, e.g., applicants’ claim 1.

In view of the above remarks, it is respectfully submitted that the disclosure of Seo et al., taken alone or in combination with disclosures of Bagala, Vollhardt, Scott et al., and/or

Eini et al., fails to render obvious applicants' claimed invention. Withdrawal of the rejection is respectfully requested.

Obviousness-type Double Patenting Rejection in view of 10/553,668 and Park et al.

Claims 1, 3, 6-13, 18, 34, and 38-42 are rejected as being obvious in view of claims 1-16 of Serial No. 10/553,668 in combination with Seo et al. (US 6,030,627).

Filed herewith is a terminal disclaimer with respect to Serial No. 10/553,668. Submission of this Terminal Disclaimer is not to be construed as acquiescence to any ground of rejection.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,

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